EFFICIENT EXCITATION QUANTIZATION IN A NOISE FEEDBACK CODING SYSTEM USING CORRELATION TECHNIQUES

ABSTRACT

A method of performing an excitation Vector Quantization (VQ) in a Noise Feedback Coding environment involves reorganizing a calculation of an energy of an error vector for each of a plurality of candidate excitation vectors of a codebook. The energy of the error vector is a cost function that is minimized during a search of the codebook for a best candidate excitation VQ vector. The reorganization includes expanding a Mean Squared Error (MSE) term of the error vector, excluding an energy term that is invariant to the candidate excitation vector, and pre-computing energy terms of ZERO-STATE responses of the candidate excitation vectors that are invariant to sub-vectors of a subframe. Another method searches a signed codebook. Both methods use correlation techniques.